97,1

Fowler & Wolfe





Fowler & Wolfe Wall Radiators



Manufactured under the

FOWLER & WOLFE PATENTS

No. 28604. May 10, 1898
" 28760. " 31, 1898
" 28761. " 31, 1898
" 29182. August 9, 1898
" 609800. " 30, 1898
" 32666. May 15, 1900

Fowler & Wolfe Mfg. Co.

Originators of Wall Radiation 668-672 Bourse Building PHILADELPHIA, PA,

REMOVED TO 521 BULLETIN BLDC.

THE FOWLER & WOLFE MANU-FACTURING COMPANY originated and perfected Wall Radiation. It is the most efficient, and the most absolute in its circulation and it is the most simple and economical to install.

Being manufacturers of Wall Radiation, and wall radiation only, they must as a natural sequence manufacture the best in the world, as they are Wall Radiator specialists.

They guarantee the surface to be as rated.

FOWLER & WOLFE WALL RADIATORS need no introduction to the Trade. They are appreciated because they are made right, look right and work right.

They are made of the best material and by the most skilled labor obtainable. Umusal care and attention is given to assembling, testing, etc. All our regular radiation is tested twice before shipment at 100 lbs. hydraulic pressure. For special steamship use our regular sections are tested at 225 lbs. pressure. Extra heavy sections, tested as high as 400 lbs. pressure, can be furnished upon special orders.

They are furnished in ornamental or plain patterns, and in a variety of sizes; can be made to fit within almost any space. They can be installed in bay windows of any angle by means of special ells. They can be curved, by mitering, to fit any circular window or space of a radius of 6 ft. or over. Their adaptability is partially shown in the succeeding nages.

Our patented construction embracing cross and intersecting tubes insures perfect circulation in whatever form assembled.

We guarantee our radiation to contain its rated surface and to be 20% more efficient than 1 in. pipe coils.

Manufactured in 5 sizes:

7 sq. ft. Sections, 24 in. x 12½ in. x 3 in

6 sq ft. Sections, 21 in. x 12½ in. x 3 in.

5 sq. ft Sections, 17 in. x 12½ in. x 3 in. 9 sq. ft. Sections, 24 in. x 13 in. x 3¼ in.

3/sq. ft. Sections, 17 in. x 9/ in. x 3 in.

Fowler & Wolfe Wall Radiation (and no other, installed in any form) has at immediate intervals, circulating return tubes that provide direct passage for the wet, cool steam in high pressure work, the water of condensation in low pressure steam work and the cooled water in hot water systems, to the lowest tube, thereby insuring an evenly heated surface upon all parts of the radiator excepting the lowest part of the bottom tube, which is fractional.

This principle is equally applicable to either one or two pipe steam, or hot water system.

It can be assembled in units to provide for distribution of heat at special locations in a manner more economical, more convenient and effective than coils.

It is equally desirable installed upon side walls, between windows, about columns or hung from ceiling.

Its durability, as against wrought iron or steel pipes, is about as 5 is to 1. It is more rigid, withstands pressure better, avoids water hammer and telephoning of noise.

It is superseding pipe coils for heating Churches, Schools, Stores, Factories, Theatres and all buildings requiring extended heating surfaces and where floor space is valuable; it is extensively used for steamship heating.

If it has not the intersecting circulating tubes it is not the Fowler & Wolfe, it is not the best, it is not the most efficient, or the most economical Wall Radiator.

IMPORTANT INFORMATION

SHIPPING LENGTHS.

Horizontal radiators of three sections or less, and vertical radiators of six sections or less, are shipped in one piece.

Horizontal radiators of more than three sections, are shipped in pieces of three sections (or less).

Vertical radiators of more than six sections are shipped in pieces of six sections (or less).

Regular internal R. and L. nipples are furnished to connect these pieces. Steel bars 61 feet in length for internal nipples, can be furnished when desired. These are charged at \$1.50 each, and credited when returned in good order, with return charges prepaid.

Hexagon external R, and L, nipples are furnished only when ordered to connect radiators shipped in several parts.

MAKING JOINTS.

Observe. That the machined faces where sections are joined, must be perfectly clean, smooth and oiled

Use but one thin gasket as furnished with radiators, then draw together with internal R, and L. threaded malleable nipples.

Caution. Do not use pipe joint grease, cement of any kind, more than one gasket or heavier gaskets than furnished, as the faces are so accurate that a permanent iron to iron joint results if the internal nipples are drawn to place.

TAPPING, ETC.

All size sections are tapped for connections, $\mathbf{1}_{k}^{\perp}$ in. standard pipe thread, excepting the special 9 ft. size, which is tapped $\mathbf{1}_{k}^{\perp}$ in. Supply and return openings are bushed to smaller sizes when desired.

Exceptionally large radiators, made up of 9 ft. sections, furnished with 2 in. supply and return when required. All other size sections furnished with 1½ in. supply and return when required.

Sections are tapped with such perfect accuracy that they may be easily assembled at destination or taken apart for alterations or repairs.

The internal area is practically that of r-inch pipe to the square foot of heating surface

ELLS.

We can furnish special faced ells of various angles for bay window radiators, both 1½ and 1½ inches, of the following angles: 11½, 21½, 33½, 425, 546, 67½, and 90. The radiators can be so tapped that these ells can be used in connection with our regular internal right and left nipples, thus making a very close and neat connection.

DIRECTIONS FOR ORDERING

First: State number of radiators and number of sections in each.

Second: State size of section, whether 7 ft. 6 ft., 5 ft , 9 ft., or 31 ft.

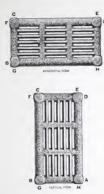
Third: State whether vertical or horizontal form is desired (see cuts on succeeding pages).

Fourth: State how many sections long and how many sections high, referring when possible to the page of this catalogue on which the arrangement is illustrated.

Fifth State whether for steam or hot water, and if for steam, whether for one or two pipe.

Sixth: State style of bracket or support desired (See pages 29, 30, 31). We recommend the use of a bracket or support for each two sections.

Seventh: Indicate (by letter on sketch) location of supply and return tappings as shown in illustrations below. Give sizes of same, and state whether Right Hand or Left Hand. Tappings at A. D. E and C are Right Hand, and at B. F. G and H Left Hand.



Eighth: Any special arrangement not shown herein, should be illustrated by sketch to facilitate handling of orders intelligently.

TERMS

All quotations F. O. B. cars our Factory, Norristown, Pa.

Net eash, 60 days from date of Invoice; 2 per cent discount for eash in 10 days from date thereof.

The legal rate of interest charged on all accounts after sixty days.

Prices on Radiation apply to the regular forms of assembling, and not to special constructions or Plate Warmers, for which there will be an extra charge.

All prices subject to change without notice

No claim allowed unless presented within sixty days after date of shipment.

Goods must not be returned without our consent. If returned without same, they will be refused. All material returned in good condition, return charges prepaid, within above conditions, will be subject to a discount from original price charged.

GUARANTEE

We guarantee our Radiators only to the extent of furnishing new sections for any found defective in manufacture.

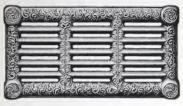
They have been tested twice before leaving our Factory at a pressure of 100 lbs, and are so delivered to transportation company

We are not responsible for breakages, straining or loosening of joints, or damages of any nature to goods in transit, as our responsibility ceases upon delivery of goods to carrier

We are not responsible for any delays caused by strikes, accident, or unavoidable causes.

We guarantee the trade against any loss cost, or dam ages for infringement of patents upon our Wall Radiation.

REGULAR ORNAMENTAL PATTERN



Horizontal, Ornamental Section, Standard Size, 7 Ft.

The ornamentation shown above will be furnished upon all orders for the following sizes, unless otherwise specified:--

- 7 sq. ft. Sections, measuring 24 in, x 124 in, x 3 in. 6 sq. ft. Sections, measuring 21 in, x 121 in, x 3 in.
- 5 sq. ft. Sections, measuring 17 in. x 121 in. x 3 in.
- 34 sq. ft. Sections measuring 17 in. x 91 in. x 3 in.

PLAIN PATTERN



Horizontal, Plain Section, Standard Size 7 Ft.

This pattern furnished in the following sizes, either in horizontal or vertical form:

7 sq. ft. Sections, 24 in. x 12½ in. x 3 in. 6 sq. ft. Sections, 21 in. x 12½ in. x 3 in.

5 sq. ft. Sections, 17 in. x 12½ in. x 3 in.

The 7 sq. ft. Section, either horizontal or vertical, is PLAIN ON BOTH SIDES: the 5 sq. ft. and 6 sq. ft. Sections are PLAIN ON ONE SIDE ONLY.

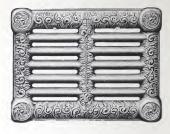
SPECIAL 9-FT. SECTION



Special 9 ft Sections are furnished in either the horizontal or vertical form ornamented as above only.

Size: 24 in x 13 in, x 31 in.

5 AND 6 SQ. FT. SECTIONS



The 5 and 6 sq. ft. Sections are similar in construction, having only one intersecting tube, as above.

Furnished in either the ornamental or plain on one side patterns, and in the vertical or horizontal forms.

Sizes: | 6 sq. ft. Section, 21 in. x 12½ in. x 3 in. | 5 sq. ft. Section, 17 in. x 12½ in. x 3 in.

DWARF SECTION (3% SO. FT.)



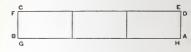
The Dwarf Section is designed for heating small bath or other rooms, staterooms in steamships, etc.

> SIZE: 17 in. x 9½ in. x 3 in. ACTUAL SURFACE 3¼ sq. ft.

Furnished in the ornamental pattern only. In single sections, in both horizontal and vertical forms,

These sections can be ASSEMBLED IN THE VERTICAL FORM ONLY.

HORIZONTAL FORM, 1 SERIES HIGH

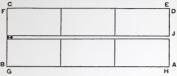


All horizontal radiators are regularly tapped Right Hand at D and A, and Left Hand at F and B. When one or more of these openings are used for supply and return, the remaining are closed. Special tappings at C, E, G and H furnished when resulted

For Two-pipe Steam and Hot Water, the regular supply and return are at A and B. unless otherwise ordered

For One-pipe Steam the regular tapping is at A or B.

HORIZONTAL FORM, 2 SERIES HIGH



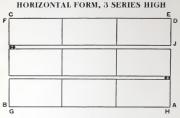
All radiators in the above form have connection between the series AT ONE END ONLY, by either our regular internal, or hexagon centre external R & L. nipples. Unless otherwise specified, hexagon nipples are furnished for this connection.

For Hot Water, the supply and return must be at top and bottom, SAME END. Supply may be at E, D or J (Regular supply is at D or F). Return may be at A or H (Regular return at A or B).

For Two-pipe Steam, the supply and return may be at top and bottom same end, or top and bottom opposite ends. Supply may be at E, D or J (Regular supply is at D or F). Return may be at A, H, B or G (Regular return at A or B).

For One-pipe Steam, tapping may be at either A, B, G or H (Regular tapping is at A or B).

On all hot WATER radiators that are an EVEN number of series high (such as 4, 6, 8, 10, etc.), the supply and return must be on the SAME END of the radiator, top and bottom.



All radiators in the above form have connections between series AT ALTERNATE ENDS ONLY, by means of regular internal, or hexagon external R. & L. nipples. Unless otherwise specified, hexagon nipples are furnished for these connections.

For Hot Water, the supply and return must be top and bottom opposite ends. Supply may be at E, D. J, C or F (Regular tapping at D or F). Return may be at B or G (Regular tapping at A or B).

For Two-pipe Steam, the supply and return may be at top and bottom opposite ends, or top and bottom same end. Supply may be at E, D, J, C or F (Regular tapping at D). Return may be at B or G, or at A or H (Regular tapping at A or B).

For One-pipe Steam, tapping may be at either A, B, G or H (Regular tapping at A or B).

On all WATER radiators that are an UNEVEN number of series high (such as 5, 7, 9, etc.), the supply and return must be on OPPOSITE ENDS, top and bottom.

HORIZONTAL INVERTED FORM



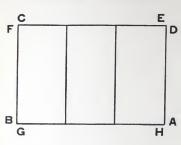
All horizontal inverted radiators are regularly tapped Right Hand at C, E, and Left Hand at G and H. All tappings not used for supply and return connections are closed.

Special tappings for supply and return at A, B, D and F can be furnished if desired.

For Hot Water and Two-pipe Steam the usual tappings for supply and return are at \hat{A} and \hat{B} .

For One-pipe Steam, the usual tapping is at A or B. When ordering, specify which openings for supply and return are desired.

VERTICAL FORM, 1 SERIES HIGH



All vertical radiators are regularly tapped Right Hand at D and A, and Left Hand at F and B. When one or more of these openings are used for supply and return, the remaining are closed. Special tappings at C, E, G and H furnished when required.

For Two-pipe Steam and Hot Water the regular supply and return are at A and B, unless otherwise ordered.

For One-pipe Steam, the regular tapping is at A or B.

VERTICAL FORM, 2 SERIES HIGH



All radiators in the above form, have connection between the series AT ONE END ONLY, by means of R, and L. internal, or external hexagon nipples, the latter being regularly furnished, unless otherwise specified

For Hot Water, the supply and return must be at top and bottom. Supply may be at E, D, J C or F (Regular supply is at D or F). Return may be at A, H, B or G (Regular return at A or B)

For Two-pipe Steam, the supply and return may be at

top and bottom same end, or at opposite ends. Supply may be at E, D, C, F or J (Regular supply at D or F). Return may be at A, H, B or G (Regular return at A or B). For One-pipe Steam. tapping may be at either A, B, G or H (Regular tapping at A or B).

VERTICAL FORM, 3 SERIES HIGH



All radiators in the above form have connections between series at ALTERNATE ENDS ONLY, by means of internal or external R. & L. nipples. Unless otherwise specified, external hexagon nipples are furnished for these connections.

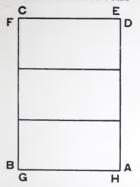
For Hot Water. The supply and return at top and bottom

For Two-pipe Steam, the supply and return may be top and bottom same end, or opposite ends. For One-pipe Steam, tapping may be at A, B, G or H

(Regular tapping at B or A).

Directions for ordering, see pages 6 and 7.

VERTICAL INVERTED FORM



All vertical inverted radiators are regularly tapped Right Hand at C and E, and Left Hand at G and H. All of these tappings, not used for supply and return connections, are closed.

Special tappings for supply and return at A, B, D and F can be furnished if desired.

For Hot Water and Two-pipe Steam, the usual tappings for supply and return are at A and B.

For One-pipe Steam, the usual tapping is at A and B.

When ordering, specify which openings for supply and
return are desired.

BAY WINDOW RADIATORS



Bay Window Radiators are connected by means of SPECIAL FACED ELLS, of the following angles: $\iota\iota\downarrow^{\circ}$, ι°_{2} , ι°_{3} , ι°_{4} , ι°_{5} , ι°_{4} , ι°_{5} , ι°_{4} , and ι°_{6} . These ells are R. H., and are machine-faced on one end.

The radiator in the centre of the window is tapped R. H. both ends, top and bottom, and the unfaced ends of the ells are connected to the radiator by means of R. H. nipples, either close or long, as the space demands. The wing radiators are tapped L. H., and connected to the faced ells by means of our regular R. & L. internal nipples and gaskets, making a close and neat connection.

We carry these special ells in stock, both in the $t\frac{1}{2}$ in. and $t\frac{1}{4}$ in. sizes. The 9 sq ft. section requires $t\frac{1}{2}$ in. ells, while all the other sizes require $t\frac{1}{4}$ in.

Wall Radiators occupy practically no valuable space in bay windows, and prevent objectionable and dangerous draughts.

CURVED RADIATORS



We furnish radiators curved to any radius of 6 feet or over, by mitering the sections and tapping them to angle.

A working templet should always be furnished when ordering curved radiators.

SEMI-DIRECT ARRANGEMENT

(With Telescopic Wall Box)



lo. 1

THIS ARRANGEMENT OF OUR WALL RADIATION is invaluable for use in churches, schools, hospitals, and all classes of public buildings, as the heating surface is placed upon the exposed walls, and any desired quantity of fresh air may be admitted from the outside, passed upward behind the radiator and thoroughly heated before its discharged into the room.

The radiation should be arranged in the horizontal form, two or more series high, as shown in above eut, No 1. Each wall box is complete in itself, and is made to fit under one (1) horizontal 7 in. or 9 in. section. As many wall boxes may be used with teach radiator as is necessary to supply the amount of fresh air required; for instance, a box may be used under every section in the radiator, or under every other section, or under only one

SEMI-DIRECT ARRANGEMENT-Continued

(With Telescopic Wall Box)

section in each radiator, as desired

The section (or sections) in the radiator immediately above the wall box is fitted with an iron plate at back of the section to impinge the air against radiator until thoroughly heated, whence it is discharged into the room through the upper series of sections.

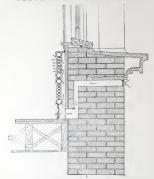


Each wall box (cut No. 2) measures 21 in. in length, 2½ in. in length and is made for any thickness of wall desired up to 21 in., being designed to occupy space of one row of bricks in a wall. The boxes have an adjustment of 3 in. (being telescopic), to provide for any inequalities in the wall or interior finish. They are made with bracket attachments to support the radiator, and are complete with damper arrangement, operative by either hand or foot, controlling the air supply, so that, when open, fresh air is admitted from outside only, when closed, air is circulated from room only; or when half closed, one-half the air is from the outside and one-half from the interior.

All wall boxes are provided with baffle plates, copper insect, or dust screen, and ornamental register face on the outside.

When ordering wall boxes, it is necessary to specify the thickness of the wall (including interior finish), and size of sections desired (whether the 7 ft. or 9 ft.).

SPECIAL FLOOR BASE ARRANGEMENT



The floor base is designed for use in old buildings, or where it is inconvenient to use the regular telescopic wall how

The air supply may be introduced through the wall as shown, or through the floor, by means of ducts from cellar window or other opening. The base is complete with damper, operated by either band or foot, controlling the air supply, so that all or a part may be admitted from the outside.

Each base is designed to fit under one section, arranged horizontally, of either the 7 ft. or 9 ft. size

When ordering, state the size of section to he used.

Directions for ordering, see pages 6 and 7

PLATE WARMERS



Constructed upon order of as many sections long, wide or high as desired.

The sections may be separated, by means of long pipes or nipples of any length desired, providing for any number of shelves.

PLATE WARMERS-Continued



When ordering plate warmers, state:

Number of sections in radiator.

Size of sections.

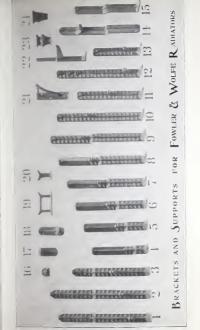
Number of shelves, and number of sections in each shelf.

Space between shelves

Whether for steam or water and if steam, whether one or two pipe.

If more than one section is desired in each shelf, state surface dimension desired.

The ornamental foot shown in above cut is 3½ in, high and is regularly furnished with plate warmers unless otherwise ordered.



DESCRIPTION OF SUPPORTS

Illustrated on page 29.

DUCK FOOT BRACKETS

No. 1 For vertical radiators only; spans 12 in. baseboard; rest 4½ in. from floor.

No. 1½ For vertical radiators only; spans 12 in baseboard; rest 2 in. from floor.

No. 2 For vertical radiators only; spans 12 in, baseboard;

rest 6½ in. from floor.

No. 3 For vertical radiators only; spans 12 in. baseboard:

No. 3 For vertical radiators only; spans 12 in. baseboard; rest 8½ in. from floor.
No. 4 For both vertical and horizontal radiators; spans

2½ in. baseboard; rest 5 in. from floor.
No. 5 For both vertical and horizontal radiators; spans

No. 5 For both vertical and norizontal radiators; spans 4 in. baseboard; rest 7 in. from floor.

No. 54 For both vertical and horizontal radiators; spans

No. 5½ For both vertical and horizontal radiators; spans 4 in. baseboard; rest 6 in. from floor. No. 6 For both vertical and horizontal radiators; spans

6 in. baseboard; rest 8% in. from floor.

No. 7 For both vertical and horizontal radiators; spans

No. 8 For both vertical and horizontal radiators; spans 8 in baseboard; rest 11 in, from floor.

No. 8 For both vertical and horizontal radiators; spans

10 in, baseboard; rest 12½ in, from floor.

No 9 For both vertical and horizontal radiators; spans
12 in baseboard; rest 14½ in, from floor.

No. 24 For horizontal radiators only; 9 in, baseboard; rest 7 in, from floor.

No. 10 For both vertical and horizontal radiators; has no offset for baseboard; rest 13 in, from floor.

No. 11 For both vertical and horizontal radiators; has no offset for baseboard; rest 8 in. from floor.

No. 11½ For both vertical and horizontal radiators; has no offset for baseboard; rest 6 in. from floor.

No. 12 For vertical radiators only; has no offset for baseboard; rest 43 in. from floor

No. 12½ For both vertical and horizontal radiators; has no offset for baseboard; rest 10 in, from floor.

No. 13 For both vertical and horizontal radiators; has no offset for baseboard; rest 41 in. from floor.

DESCRIPTION OF SUPPORTS-Continued

Illustrated on page 29

- No. 13½ For both vertical and horizontal radiators; has no offset for baseboard; rest 3 in from floor.
- No. 14 For horizontal radiators only; screws to baseboard 64 in. from top of baseboard.
- No. 15 For horizontal radiators only; spans 8 in. baseboard; rest 8 in. from floor
- No. 22 For double (two thick) radiators only; rest 3½ in. from floor.
- No. 22½ For double (two thick) radiators only; rest 7 in. from floor

WALL HANGERS

- No. 16 For both horizontal and vertical, and all sizes excepting 9 ft.
- No. 161 Same as No. 16, but for 9 ft. section only.
- No 17 For both horizontal and vertical, and all sizes excepting 9 ft.

 No. 17 Same as No. 17, but for 9 ft, section only.
- No. 18 For both horizontal and vertical, and all sizes
- excepting 9 ft.
- No. 181 Same as No. 18, but for 9 ft section only.

ators, etc.

No. 21 For double (two thick) radiators only; height 7 in.

FLOOR SUPPORTS

- No. 19 For double (two thick) radiators only; and for all sizes excepting 9 ft; height 3 in.

 No. 194 Same as No. 10, but for 9 ft, section only.
- No. 20 For single radiators and for all sizes, height 3 in.
- No. 201 For single radiators and for all sizes; height 2 in. No. 23 Ornamental foot, for plate warmers, double radiators.

WHEN ORDERING BRACKETS OR SUPPORTS IN-DEPENDENTLY, PLEASE STATE FOR WHAT SIZE SECTION WANTED.

SUMMARY OF RESULTS OF TESTS made under direction of the German Government by an eminent German engineer

to determine the relative efficiency of wrought iron pipe coils as against Fowler & Wolfe Wall Radiators. 1 surface meter of heating pipes versus I surface meter of Fowler & Wolfe Wall Radiation. Steam Pipes (coils) 830 Units of Heat.
Fowler & Wolfe Wall Radiators 1050 Units of Heat.

Fowler & Wolfe H. W. Wall Radiators 680 Units of Heat. · · · · · 680 Units of Heat. Water Pipes (coils)

Demonstrating that the heating power of the Fowler & Wolfe Wall Radiators is greatly superior to wrought iron pipe colls. Heretofore wrought iron pipe coils have been considered the most efficient form of radiation.

SUMMARY OF TESTS of various steam radiators made at Sibley College, Cornell University, by Messes, Camp, Woodward and Sickles, Mechanical Engineers under the direction of R. C. Carpenter, M. S., C. E., M. M. E. (This summary is the average of several consecutive tests made on these several radiators.)

These tests were all made in the same closed room under even temperatures and under a same conditions.	D. & W. Wall Roth, Standard Height Astandard Jerjoh A standard length Standard Jerjoh Standard John Standard and Standard John Standard and Standard John Standard Incompetent Standard and Standard S	Standard Height 3-column cust from radiator.	A standard height cast from radiator with loops attached to base.	A standard height radiator made vin. a wrought fron pipe attrached to cast from tone (2 rows, water)	A standard herg cast fron 2-color radiator.
A.C. Deel radiated per hour, per sq. ft. of A.C.UAL surface. Per degree difference in temperature	2.238	1.732	1.705	1.643	1.319
B T. U. heat radiated per hour, per RATED 8q. ft. of surface. Per degree difference in temperature	2.400	1.712	1 594	1.266	1.266
Steam condensed per hour, per ACTUAL sq. ft. of heating surface. Pounds	0.351	0.236	0.239	0.182	0.182
Steam condensed per hour, per RATED sq. ft. of heating surface. Pounds	0.376	Not Computed.	Not	Not Computed.	This rad, had an in

The above tests prove the FOWLER & WOLFE RADIATOR is far more efficient than other types,



Fowler & Wolfe



CATALOG F